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PROCEEDINGS  
OF THE  
BIOLOGICAL SOCIETY OF WASHINGTON

NEW TREE-FROGS OF THE GENERA *HYLA*  
AND *NYCTIMYSTES* FROM NEW GUINEA.

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In a recent paper (Proc. Biol. Soc. Washington, 58, pp. 47-52) I described three new skinks presented to the Museum of Comparative Zoölogy by Captain P. J. Darlington, Jr., who obtained them during his ascent to the summit (15,400 feet) of Mount Wilhelm, previously climbed, I understand, only by three Australian officials.

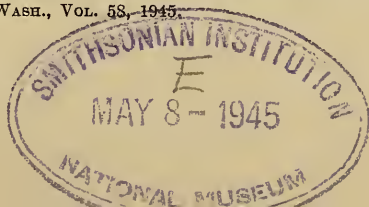
The present article deals with three new hylids collected by Darlington, and two others that had long been in the collection under the wrong names they bore when received in exchange. With these new species I have associated the names of Dr. Darlington and Sergeant William M. Beck, Jr., for to the latter we are also indebted for an extensive Guinean collection. Another frog is named for Dr. L. D. Brongersma, whose painstaking researches have done so much to add to our knowledge of the herpetofauna of Dutch New Guinea from which it comes.

*Hyla darlingtoni* sp. nov.

*Type*.—Museum of Comparative Zoölogy, No. 25890, a gravid ♀ from Mount Wilhelm, 5000-8000 feet, Bismarck Range, Madang Division, New Guinea, collected by Captain P. J. Darlington, Jr., October, 1944.

*Diagnosis*.—Near *H. papuensis* Werner, of the Torricelli Mountains, from which it differs in having the head as long as broad (not a little broader than long); snout twice (not once and a half) as long as the orbital diameter; tympanum seven-eighths (not a little larger than half) the orbital diameter; fingers somewhat less webbed; tibio-tarsal articulation of the adpressed hind limb reaches anterior border of eye (not the snout); back without (not with longitudinal rows of) warts; heels without (not with) a dermal appendage; color entirely different.

*Description*.—Head as long as broad; snout subacuminate, its length



(to anterior corner of eye) slightly less than the distance separating the anterior corners of the eyes, the distance from its tip to the nostril one-third that between the nostril and anterior border of the eye or one-third the orbital diameter; canthus rostralis obtusely rounded, curved; loreal region oblique, slightly concave; interorbital space nearly twice as broad as an upper eyelid; tympanum large, seven-eighths the orbital diameter; tongue large, subcordiform, distinctly emarginate behind and slightly free; vomerine teeth in two short, juxtaposed clumps between the choanae from which they are separated by a distance equal to one clump.

Fingers two-thirds webbed, the web reaching to the tubercle on first and third, to the disk on second and fourth, though as a narrow margin on the fourth; first finger shorter than second, which is shorter than fourth, which is shorter than the third; disk of third as large as the tympanum; toes webbed to the disks; subarticular tubercles prominent; an oval inner but no outer metatarsal tubercle; tibio-tarsal articulation of the adpressed hind limb reaches to the anterior border of the eye.

Skin above smooth or indistinctly granular; a curved supratympanic fold; a series of tubercles on forearm from elbow to wrist and a dermal ridge along outer edge of fourth finger; no lappet on heel but a dermal ridge from heel along outer edge of fifth toe. Below, chin, throat, breast, belly and thighs granular.

*Color in formalin.*—Above, blue gray, from snout to lumbar region a narrow, pinkish, vertebral line; from posterior border of eye to above axilla a broad pinkish area speckled with blue gray; groin and thighs, both before and behind but not above, black handsomely variegated with pure white. Below, chin and throat dusky; chest, abdomen, and underside of thighs white; tibia variegated with black and white; feet and hands grayish.

*Size.*—Length of gravid ♀ from snout to anus 50 mm.

#### *Hyla angularis* sp. nov.

*Type.*—Museum of Comparative Zoölogy, No. 25891, a ♂ from Mount Wilhelm, 5000–8000 feet, Bismarck Range, Madang Division, New Guinea, collected by Captain P. J. Darlington, Jr., October, 1944.

*Affinities.*—This distinctive *Hyla* does not appear to be closely related to any New Guinean species. In van Kampen's (1923) key it comes near *H. everetti* of Sumba Island, Dutch East Indies from which it differs in many respects.

Apparently referable to this species are nine juvenile frogs (M.C.Z. 25892–9) ranging from a 17 mm. (snout to anus) specimen with tail, and a 21 mm. example without tail, to a 38 mm. frog. The larger ones show well the sharply angular canthus rostralis for which this species is named. Nor do they differ structurally from the type apart from the absence of vomerine teeth in some, the dermal series of tubercles on forearm is undeveloped in a few, and the tibio-tarsal articulation of the adpressed hind limb reaches beyond the end of the snout in two specimens.

*Description*.—Head longer than broad; snout subacuminate, its length (to anterior corner of eye) equal to two-thirds the distance separating the anterior corners of the eyes, the distance from its tip to the nostril equal to half that between the nostril and anterior border of the eye or three-quarters the orbital diameter; canthus rostralis sharply angular, almost straight; loreal region vertical, scarcely concave; interorbital space nearly twice as broad as an upper eyelid; tympanum moderate, about half the orbital diameter; tongue large, subcordiform, distinctly emarginate behind and slightly free; vomerine teeth in two rather indistinct, oblique groups between the choanae.

Fingers half webbed except the first which is only webbed at base, the web reaching to, or just beyond, the tubercle on the second, third, and fourth fingers; first finger much shorter than second, which is shorter than fourth, which is shorter than the third; disk of third almost twice as large as the tympanum; toes webbed to the disks except the fourth which has the last joint free or narrowly margined with web; subarticular tubercles prominent, an oval inner but no outer metatarsal tubercle; tibio-tarsal articulation of the adpressed hind limb reaches the nostril.

Skin above smooth or indistinctly granular; a curved supratympanic fold; a series of tubercles on forearm from elbow to wrist and a slight dermal ridge along outer edge of fourth finger; though a male the nuptial swelling at base of first finger is unpigmented; no lappet on heel, and a dermal ridge only along the outer edge of the fifth toe. Below, chin and throat smooth; breast, belly, and thighs granular.

*Color in formalin*.—Above, blue-black, an irregular, broad, pinkish band from end of snout to groin where there is a purplish suffusion extending along anterior side of thigh to tibia; beneath the eye this band is interrupted by a blue-black patch which extends backwards to the angle of the jaw; hinder side of thighs pinkish with irregular dusky markings; upper side of thighs, tibiae, and outer edge of feet white; innermost fingers and toes white, the outer ones dark at base, dusky at tips. Below, white, uniform.

In color the paratypes differ considerably from the type, the heads of the younger are uniformly blue-black, of the larger ones the lips may be edged with white foreshadowing the broad rostrolateral band of which there is no trace.

*Size*.—Length of type ♂ from snout to anus 45 mm.

*Hyla becki* sp. nov.

*Type*.—Museum of Comparative Zoölogy, No. 25900-9 an apparently fully adult ♂ taken among rocks beside a brook in the forest on Mount Wilhelm, 7,500-10,000 feet, Bismarck Range, Madang Division, New Guinea, collected by Captain P. J. Darlington, Jr., October, 1944.

*Paratypes*.—Museum of Comparative Zoölogy, Nos. 25901-9, being thirty-nine frogs, mostly young, with same data as the type.

*Diagnosis*.—Near *H. vagabunda* Peters & Doria, of Sorong, New Guinea, with which it agrees in size but differs in the snout being once and a half (instead of scarcely longer than) the orbital diameter; canthus

rostralis angular (not more or less rounded); nostril midway between tip of snout and anterior border of eye (not nearer snout); skin warty (not just smooth) above; no white line (either in type or young) from tip of snout along canthus rostralis to tympanum.

The possibility of identifying this species with *Hylella wolterstorffi* Werner, of New Guinea, has been considered. Werner's 23 mm. holotype, being young, lacked vomerine teeth, so his description was compared with a 23 mm. paratype of *becki* lacking vomerine teeth. It was found to differ in the interorbital space being once and a third (not twice) the width of an upper eyelid; the tympanum being half (not a fifth) of the orbital diameter; disks of toes larger or as large (not smaller than) the tympanum, etc.

*Description.*—Head as long as (or slightly longer than) broad; snout subacuminate or roundish, its length (to anterior corner of eye) about three-quarters (to seven-eighths in young) the distance separating the anterior corners of the eyes, the distance from its tip to the nostril about equal to that between the nostril and anterior border of the eye or three-quarters the orbital diameter; canthus rostralis angular, straight; loreal region feebly oblique, concave; interorbital space once and one-third as broad as an upper eyelid; tympanum moderate, about half the orbital diameter; tongue large, subcordiform, distinctly emarginate behind and slightly free; vomerine teeth in two oblique groups between the posterior borders of the choanae from which they are well separated.

Fingers free; first much shorter than second, which is slightly shorter than the fourth, which is shorter than the third; disk of third much larger than the tympanum; toes two-thirds webbed except the first which is scarcely webbed to the tubercle, the others webbed just beyond the tubercle and thereafter only as a narrow seam sometimes reaching to the disk; subarticular tubercles prominent; an oval inner but no outer metatarsal tubercle; tibiotarsal articulation of the adpressed hind limb reaches well beyond end of snout (in paratypes to between eye and nostril or beyond end of snout).

Skin above smooth with conspicuous tubercles on hinder portion of eyelids, flanks, and forelimbs; a curved supratympanic fold; a few scattered tubercles forming an ill-defined series on outer edge of forearm; though a male the nuptial swelling at base of first finger is scarcely pigmented; no lappet on heel nor dermal ridge along outer edge of foot. Below, throat slightly granular; breast, belly, and thighs granular.

*Color in formalin.*—Above, plumbeous; a white patch on upper lip beneath eye; flanks flecked with white; thighs paler than back, faintly flecked with plumbeous. Below, dusky brown or grayish (ranging to whitish in paratypes) more or less flecked or spotted with darker and lighter.

*Size.*—Length of adult ♂ from snout to anus 38 mm.

*Hyla brongersmai* sp. nov.

*Type.*—Museum of Comparative Zoölogy, No. 15203, an adult ♂ from

Parana Valley, central Dutch New Guinea, collected by Dr. P. Wirz, 1925.

*Diagnosis*.—This frog, originally received from the late Dr. Jean Roux as *H. arfakiana* Peters & Doria, has little in common with that 70 mm. species, for it is adult (by dissection) at 24 mm. Nor is it closely related to the 52 mm. *H. wirzi* Roux (1927) taken by Wirz at Sentani.

*H. brongersmai* belongs to that group of dwarf species which never acquire vomerine teeth. It is apparently related to *chloronota* (Boulenger) of the Arfak Mountains, Dutch New Guinea, from which it differs in the snout (to eye) being much longer than (not as long as) the orbital diameter; tympanum about three-quarters (not about half) the orbital diameter; outer fingers half (not a third) webbed; apparently a large external (or internal) vocal sac on hinder part of throat; upper side of thighs spotted (not narrowly striped with green), etc.

*Description*.—Head as long as broad, snout blunt, its length (to anterior corner of eye) about two-thirds the distance separating the anterior corner of the eyes, the distance from its tip to the nostril slightly more than half that between the nostril and anterior border of the eye or slightly more than half the orbital diameter; canthus rostralis obtusely angular, almost straight; loreal region vertical, not or but slightly concave; interorbital space once and a half as broad as an upper eyelid; tympanum large about three-quarters the orbital diameter; tongue moderate, subcordiform, distinctly emarginate behind and slightly free; vomerine teeth absent (though frog adult).

Fingers webbed, outer half-webbed, rest barely to tubercle on one side only; first finger much shorter than second, which is slightly shorter than fourth, which is shorter than third; disk of third as large as the tympanum, as large as that of fourth but much larger than those of first and second; toes webbed to the disks except the fourth which has the last joint free, and the first, which is webbed only to the tubercle; subarticular tubercles prominent, an oval inner but no outer metatarsal tubercle; tibiotarsal articulation of the adpressed hind limb reaches end of snout.

Skin above smooth or indistinctly granular; a curved supratympanic fold; no dermal ridge or series of tubercles on forearm; being a male there is a partly pigmented nuptial swelling at base of first finger; no lappet on heel nor dermal ridge along outer edge of foot. Below, throat smooth, breast, belly, and thighs granular.

*Color in alcohol*.—Above, plumbeous, paling towards the dark brown flanks and thighs which are spotted with lighter; tibia, feet, and forelimbs brown with indistinct lighter markings. Below, lips brown blotched with white; chin dark brown; throat, breast, and belly yellowish; underside of limbs pale brown more or less flecked with lighter.

*Size*.—Length of adult ♂ from snout to anus 24 mm.

*Nyctimystes milneana* sp. nov.

*Type*.—Museum of Comparative Zoölogy, No. 11652, a gravid ♀ from Milne Bay, Eastern Division, Papua. Collector unknown.

*Remarks.*—This frog, received twenty years ago in exchange, was labeled *Hyla montana* Peters and Doria. On comparing it with a good series of that species collected by Captain P. J. Darlington, however, it is seen to have little in common with that species. Nor does it seem referable to any known *Hyla*.

Though the pupil of the eye is fully dilated there is a basal nick indicating that it would be vertical when contracted, moreover, on being compared with *Nyctimystes papua* (Boulenger) and *N. montana* Parker, it shows unmistakable affinities. When describing *montana* Parker (1936, *Ann. Mag. Nat. Hist.* (10), 17, p. 77) furnished a key to the five species which he recognizes, and it would appear as if the new form might possibly be a subspecies of his *semipalmata*.

*Diagnosis.*—Near *N. semipalmata* Parker, from which it differs in having the vomerine teeth in two clumps forming an almost straight line with the posterior edges of the choanae; tympanum moderate, about two-thirds the orbital diameter; tibio-tarsal articulation of the adpressed hind limb reaching to between eye and end of snout; no lappet distinguishable on heel.

*Description.*—Head slightly longer than broad; snout depressed, its length (to anterior corner of eye) greater than the distance separating the anterior corners of the eyes, the distance from its tip to the nostril twice that between the nostril and anterior border of the eye; canthus rostralis obtusely angular, curved; loreal region obliquely concave; interorbital space narrower than an upper eyelid; tympanum moderate, about two-thirds the orbital diameter; tongue large, subcircular, slightly emarginate behind, scarcely free; vomerine teeth on two raised bones, forming an almost straight line with the posterior borders of the choanae.

Fingers about half-webbed (*cf.* Parker, fig. 5), the larger disks slightly smaller in width than the height of the tympanum; first finger much shorter than second, which is slightly shorter than the fourth; toes webbed to the disks; subarticular tubercles prominent; a small oval inner but no outer metatarsal tubercle; tibio-tarsal articulation of the adpressed hind limb reaches to halfway between eye and end of snout.

Skin smooth above; a curved supratympanic fold; a series of tubercles on forearm from elbow to wrist; no trace of a lappet on heel but a dermal ridge feebly indicated along outer edge of foot. Below, throat smooth, breast, belly, and thighs granular.

*Color in alcohol.*—Above, pinkish brown, the upper lip edged with white. Below, creamy white, the throat microscopically speckled with black, otherwise uniform.

*Size.*—Length of gravid ♀ from snout to anus 48 mm.